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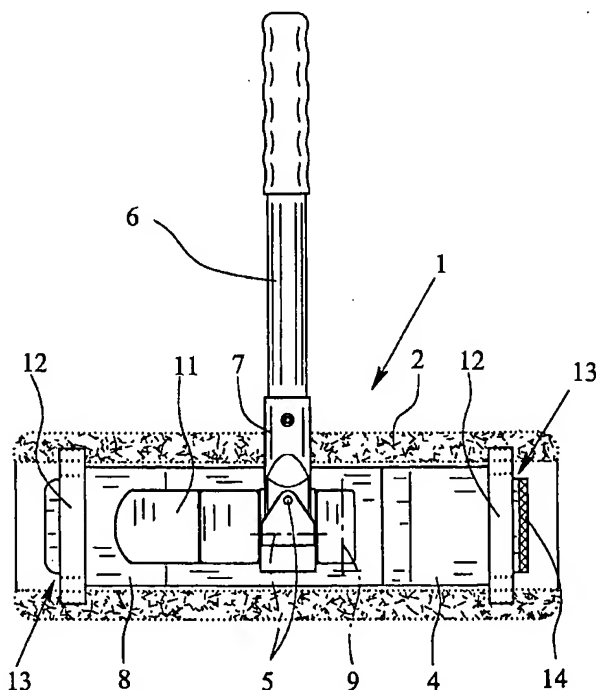
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(54) Title: **FLAT MOP DEVICE WITH A FOLD-AWAY MOP HOLDER**



(57) Abstract: The invention relates to a flat mop device comprising a plate-shaped or frame-shaped mop holder (1), and a flat mop (2) of textile or textile-like material matching the mop holder (1) and attachable to the mop holder (1). The mop holder (1) is of the fold-away type and comprises a foldable plate (3) with a first part (4) carrying a joint (5) for attachment of the mop holder (1) to a handle (6), a second part (8) pivotally attached to the first part (4) by means of a folding axis (9), connecting means (10) securely connecting both parts (4,8) in an operational straight position, and opening means (11) to release the connecting means (10) upon mechanical operation thereof so that the first and second parts (4, 8) fold away to an inclined position relative to the handle (6) allowing attachment of the flat mop (2) to or detachment off the flat mop (2) off the mop holder (1). The flat mop (2) comprises on the upper side facing the mop holder (1), close to each of the two opposing ends thereof, a narrow fixing strip (12) which forms an insertion opening for a corresponding end of the corresponding first or second part (4; 8) of the plate (3) respectively and which extends essentially transversely across the corresponding end section of the corresponding first or second part (4; 8) of the plate (3) when the flat mop (2) is attach to the mop holder (1). The handling of this device is improved by the design that on the end of one part (4) of the plate (3) a holding fixture

(14) is provided that holds the corresponding fixing strip (12) of the flat mop (2) whilst the other end of the flat mop (2) assigned to the other part (8) of the plate (3) is no longer attached to the mop holder (1).

### Flat mop device with a fold-away mop holder

The present invention relates to a flat mop device with a mop holder of the fold-away type having the features of the pre-characterizing part of claim 1. The essential parts of such flat mop device are on the one hand a mop holder and on the other hand a removable flat mop that is to be fixed to the mop holder. Those flat mop devices are used for cleaning surfaces, in particular floor surfaces.

Flat mop devices are well-known devices frequently used for cleaning floor surfaces professionally. The flat mop device forming the starting point of the invention (WO 03/020100 A1) comprises a mop holder on which a handle socket is mounted, generally via a universal joint, so that it can sweep easily in all directions. A more or less long handle can be inserted into the socket to enable a person to work with the flat mop device conveniently. The mop holder itself is designed as a generally longitudinally extending rectangular plate or as a similar rectangular wire frame, sometimes additionally equipped with an attachment plate (DE 29 14 230 A1). The term "longitudinally extending rectangular" also includes shapes that in plan view deviate slightly from an exact rectangular shape, in particular to a trapezoidal shape.

The prior art flat mop device has a mop holder of the fold away type. This comprises a foldable plate or frame with a first part carrying a joint for an attachment of the mop holder to the handle, a second part pivotally attached to the first part by means of a folding axis, connecting means like a magnet means securely connecting both parts of the mop holder in an operational straight position, and opening means like an actuating lever releasing the magnet to release the connecting means upon mechanical operation thereof. After operation of the opening means the two parts of the plate can fold away to an inclined position relative to the handle so that the flat mop is released from the plate.

Attachment of the flat mop to the mop holder is convenient with such mop holder of the fold away type. In the folded, i. e. shortened state the mop holder fits between the two fixing strips on the upper side of the flat mop. By pressing on the folded mop holder the ends slide into the insertion openings formed by the fixing strips. In the straight position of the two parts of the plate the connecting

means connects securely both parts in the operational straight position. The mop holder is now locked and the mop device can be used as intended.

5 The prior art discussed above uses narrow fixing strips instead of fixing pockets closed on three sides as used in former flat mop devices. In conjunction with corresponding positioning fixing formations on the mop holder the flat mop is equally well positioned on the mop holder with the fixing strips of this prior art.

10 When folding away the two parts of the plate of the prior art mop holder the flat mop is simply slipping off the part of the plate and has to be retrieved by hand of the person handling the flat mop device. Normally, the flat mop in this situation is spoiled and wet and handling of the flat mop is somewhat unpleasant.

15 The objection of the present invention is to develop and modify the known flat mop device towards a more convenient way to handle the device when the flat mop is spoiled and needs replacement.

20 The problem explained above is solved by the flat mop device according to the invention having the features of the complete claim 1. According to the invention the flat mop is prevented from slipping off the plate of the mop holder by means of a holding fixture on one of the parts of the plate. So, after cleaning a corresponding surface the flat mop may be dropped off the mop holder after folding away both parts of the plate to the respective inclined position relative to the handle. But this is done not completely, because one end of the flat mop is held  
25 by the holding fixture even in this position. So the spoiled flat mop can be transported by moving the mop holder with the flat mop hanging down from the one part of the plate towards a bucket or the like. By this means the user has no need to bend down, neither is there any need to handle the spoiled flat mop itself.

30 Preferred modifications and developments of the flat mop device according to the invention are the subject of the sub-claims.

35 The invention is described in more detail hereinafter with the aid of drawings illustrating preferred embodiments of the invention. Modifications and developments of the invention are explained in conjunction with the description of these embodiments. In the drawings

- Fig. 1 shows a preferred embodiment of a mop holder of a flat mop device according to the invention,
- 5 Fig. 2 shows an embodiment of a flat mop of a flat mop,
- Fig. 3 shows a flat mop device consisting of the mop holder of Fig. 1 and the flat mop of Fig. 2,
- 10 Fig. 4 shows the flat mop device of Fig. 3 in the position after mechanical operation of the opening means with the flat mop hanging down from the mop holder,
- Fig. 5 shows detailed enlarged views of a number of versions of the hold-  
15 ing fixture on the mop holder.

The present invention provides a flat mop device for wiping surfaces to be cleaned, in particular floor surfaces.

- 20 As Fig. 1 shows a mop holder 1 and Fig. 2 shows a flat mop 2, Fig. 3 shows the combination of both in the flat mop device as such. Seeing Fig. 1 to 3 together there is disclosed a flat mop device comprising a plate-shaped or (frame-shaped) mop holder 1. This mop holder 1 is here and preferably of a substantially longitudinally extending rectangular shape. Further this flat mop device comprises a  
25 flat mop 2 of textile or textile-like material matching the mop holder 1. This flat mop 2 is attachable to the mop holder 1. The mop holder 1 is of the fold-away type and thus comprises a foldable plate 3 (or a corresponding frame of preferably stainless steel wire, preferably coated with plastics), with a first part 4 carrying a joint 5, here a universal or cardan joint, for attachment of the mop holder 1  
30 to a handle 6. Precisely, the handle 6 is attached to the joint 5 here by means of a handle socket 7, so that the handle 6 is removably attached to the plate 3. Handles 6 of different length may be attached to the plate 3 by means of the handle socket 7.
- 35 A second part 8 of the plate 3 is pivotally attached to the first part 4 by means of a folding axis 9. Further provided are connecting means 10 for connecting both

parts 4, 8. The connecting means 10 in this particular design are provided by a magnetic holding means securely connecting both parts 4, 8 in an operational straight position. However, other means are disclosed in the prior art, e. g. mechanical catch means. Those can be employed here as well.

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Further provided are opening means 11 to release the connecting means 10 upon mechanical operation thereof so that the first and second parts 4, 8 of the plate 3 fold away to an inclined position relative to the handle 6. This open position is disclosed in Fig. 4. The opening means 11 are here provided by an actuating lever on the first part 4 of the plate 3 releasing the mechanical connection and releasing the connecting means 10 as well. By operating the actuating lever as opening means 11 the connecting means 10 is released and the mop holder 1 can be folded away with the two parts 4, 8 now hanging downwards inclined relative to the handle 6. To install the flat mop 2 to the mop holder 1 the mop holder 1 is simply pressed downwards, whereupon the ends thereof straighten underneath the fixing strips 12 on the upper side of the flat mop 2. The two parts 4, 8 of the mop holder 1 are drawn together and snapped tight under the action of the magnet, the connecting means 10.

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Now, as can be seen in Fig. 1, and particularly, Fig. 4 as well as the specific drawings in Fig. 5, on the end of the first part 4 (in this specific design) of the plate 3 a holding fixture 14 is provided that holds the corresponding fixing strip 12 of the flat mop 2 whilst the other end of the flat mop 2 assigned to the other part 8 of the plate 3 is no longer attached to the mop holder 1. As can be obtained from Fig. 4 now the plate 3 of the mop holder 1 is folded away and the flat mop 2 is hanging down with the strip 12 at the first part 4 catching the holding fixture 14 on that first part 4 of the plate 3 so that the flat mop 2 is not falling off as in the prior art but can be carried away together with the mop holder 1 to be dropped into a bucket or the like for further treatment.

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The holding fixture 14 on the first part 4 of the plate 3 of the mop holder 1 in this specific embodiment gives the essential inventive advantage over the prior art.

Now, in this specific embodiment described here it is provided that the holding fixture 14 is formed as an inclined surface on the upper side of the corresponding part 4 of the plate 3 or frame. In particular, the inclination is between approxi-

mately 75° and approximately 120°, preferably about 90°. As can be obtained from Fig. 5, upper section, in this particular design the holding fixture 14 is designed as a triangular bar at the end of the corresponding first part 4 of the plate 3. Fig. 4 discloses how the flat mop 2 is stopped by this holding fixture 14 from slipping off this first part 4 of the mop holder 1.

However, Fig. 5 in the second section shows a different approach to realize the holding fixture 14, i. e. here the holding fixture 14 is formed as two hook-like elements 14a, 14b.

Regarding the prior art forming the starting point of the invention it was explained that instead of a plate 3 a longitudinally extending rectangular wire frame 3 can be used. If this is the case then it is a possibility to realize that the holding fixture 14 is formed as a loop-like formation of a wire-like material forming the frame of the corresponding part 4 of the mop holder 1. The wire-like material of the frame 3 that is shown in the third section of Fig. 5 provides the possibility to integrally form the holding fixture 14 from the wire-like material.

In the drawings and in particular Fig. 5, first section, it is disclosed that the holding fixture 14 is an element separate from the plate 3 or frame of the mop holder 1, but fixedly attached to the corresponding part 4 of the plate 3 or frame at the respective end thereof. This separate element can be glued or otherwise attached, for example by screws, to the generally flat plate 3 of the mop holder 1.

Finally, to get an idea about the measures involved it is explained that following a preferred embodiment of the invention it is provided that the holding fixture 14 extends approximately 2 mm to 10 mm, preferably about 5 mm from the upper side of the mop holder 1.

## Claims:

1. Flat mop device comprising  
a plate-shaped or frame-shaped mop holder (1), preferably of substantially lon-  
5 gitudinally extending rectangular shape, and  
a flat mop (2) of textile or textile-like material matching the mop holder (1) and  
attachable to the mop holder (1),  
wherein the mop holder (1) is of the fold-away type and comprises a foldable  
plate (3) or frame with a first part (4) carrying a joint (5) for attachment of the  
10 mop holder (1) to a handle (6), a second part (8) pivotally attached to the first  
part (4) by means of a folding axis (9), connecting means (10) securely connect-  
ing both parts (4,8) in an operational straight position, and opening means (11) to  
release the connecting means (10) upon mechanical operation thereof so that the  
first and second parts (4, 8) fold away to an inclined position relative to the han-  
15 dle (6) allowing attachment of the flat mop (2) to or detachment of the flat mop  
(2) off the mop holder (1),  
wherein the flat mop (2) comprises on the upper side facing the mop holder (1),  
close to each of the two opposing ends thereof, a narrow fixing strip (12) which  
forms an insertion opening for a corresponding end of the corresponding first or  
20 second part (4; 8) of the plate (3) or frame respectively and which extends essen-  
tially transversely across the corresponding end section of the corresponding first  
or second part (4; 8) of the plate (3) or frame when the flat mop (2) is attach to  
the mop holder (1),  
**characterized in that**  
25 on the end of one part (4) of the first and second parts (4; 8) of the plate (3) or  
frame a holding fixture (14) is provided that holds the corresponding fixing strip  
(12) of the flat mop (2) whilst the other end of the flat mop (2) assigned to the  
other part (8) of the first and second parts (4; 8) of the plate (3) or frame is no  
longer attached to the mop holder (1).  
30
2. Flat mop device according to claim 1, characterized in that the holding fix-  
ture (14) is formed as an inclined surface on the upper side of the corresponding  
part (4) of the plate (3) or frame.
- 35 3. Flat mop device according to claim 2; characterized in that the inclination is  
between approximately 75° and approximately 120°, preferably about 90°.

4. Flat mop device according to claim 1, characterized in that the holding fixture (14) is formed as at least one hook like element on the upper side of the corresponding part (4) of the plate (3) or frame.
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5. Flat mop device according to claim 4, characterized in that the holding fixture (14) is formed as a loop-like formation of a wire-like material forming the frame of the corresponding part (4) of the mop holder (1).
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6. Flat mop device according to any one of the claims 1 to 4, characterized in that the holding fixture (14) is an element separate from the plate (3) or frame of the mop holder (1), but fixedly attached to the corresponding part (4) of the plate (3) or frame at the respective end thereof.
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7. Flat mop device according to any one of the preceding claims, characterized in that the holding fixture (14) extends approximately 2 mm to 10 mm, preferably about 5 mm from the upper side of the mop holder (1).



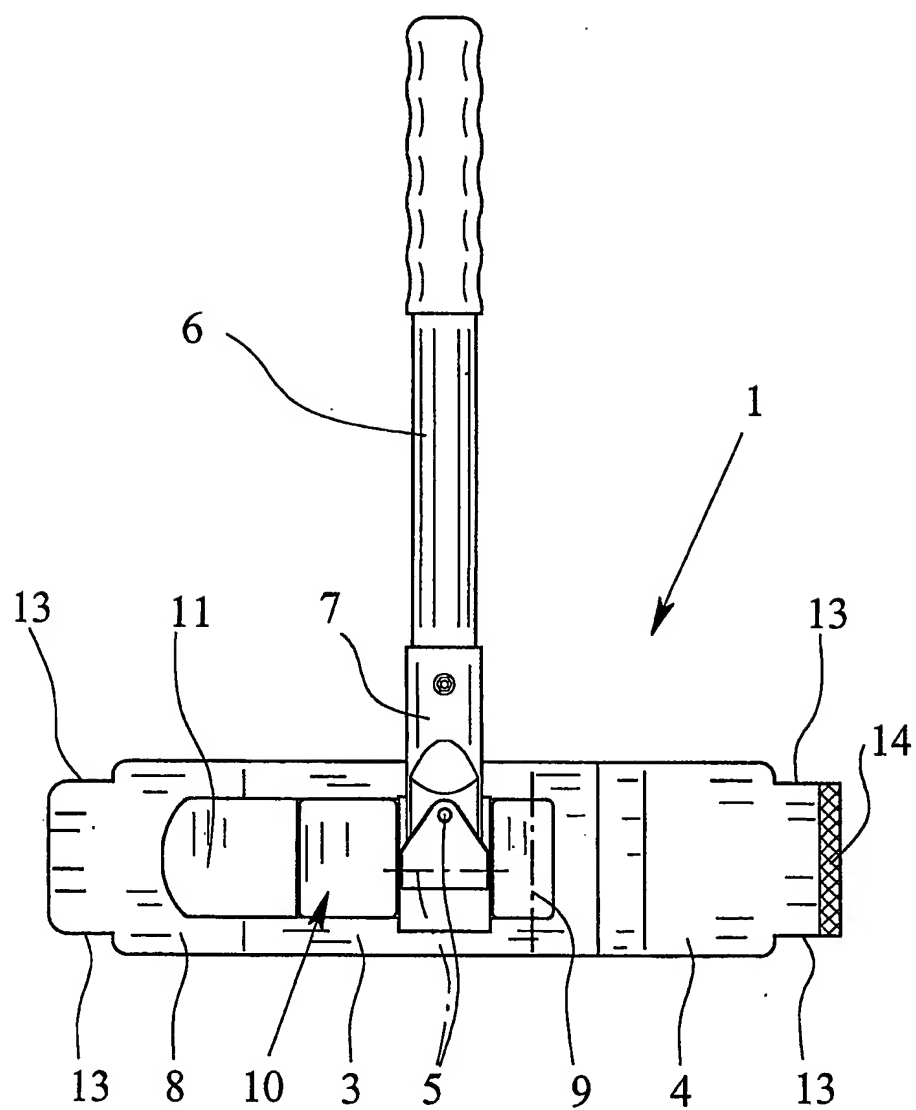


Fig. 1

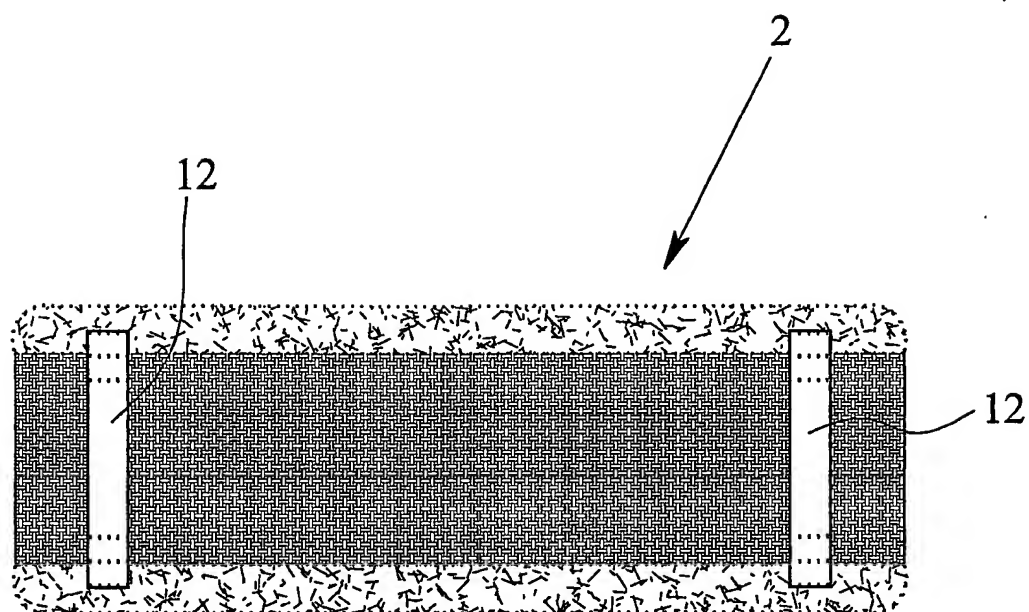


Fig. 2

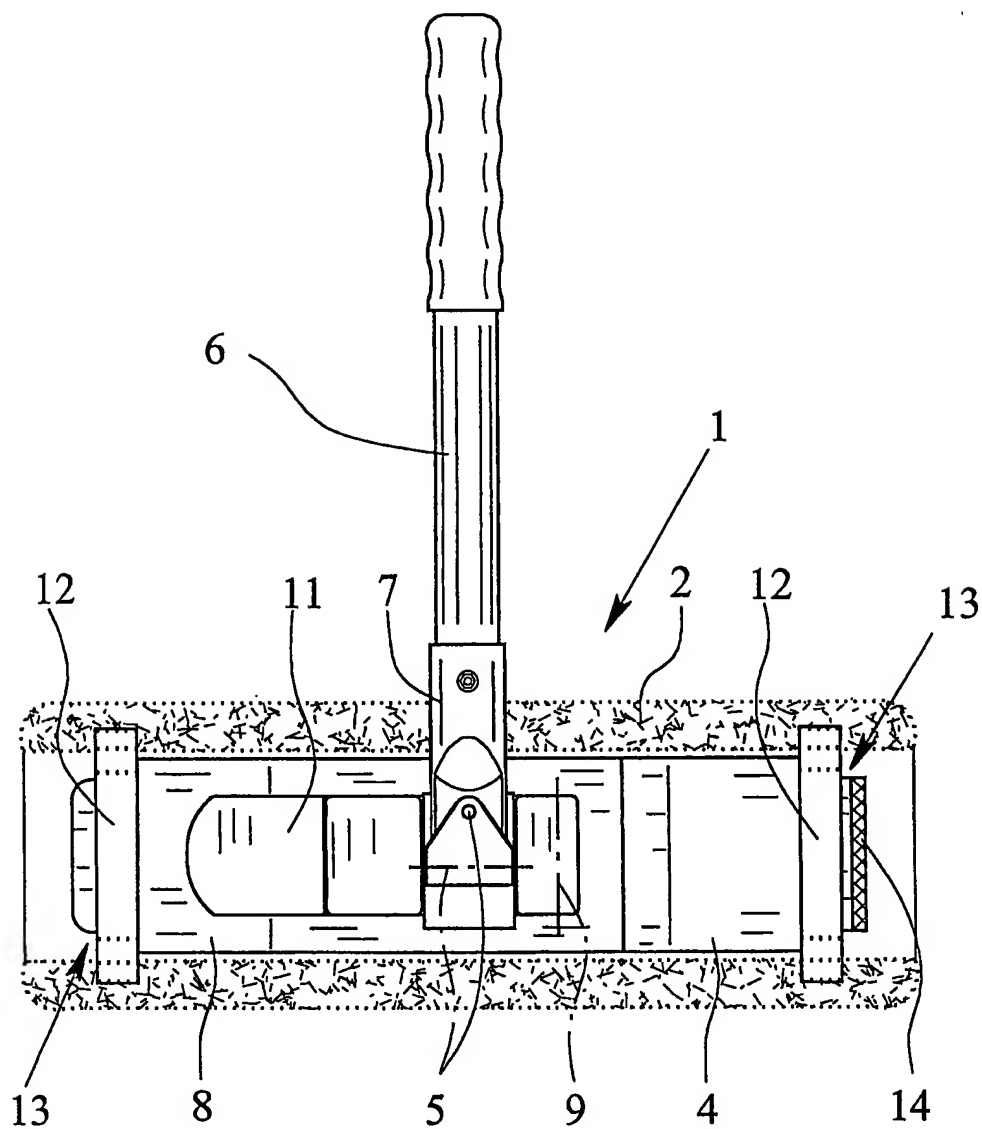


Fig. 3

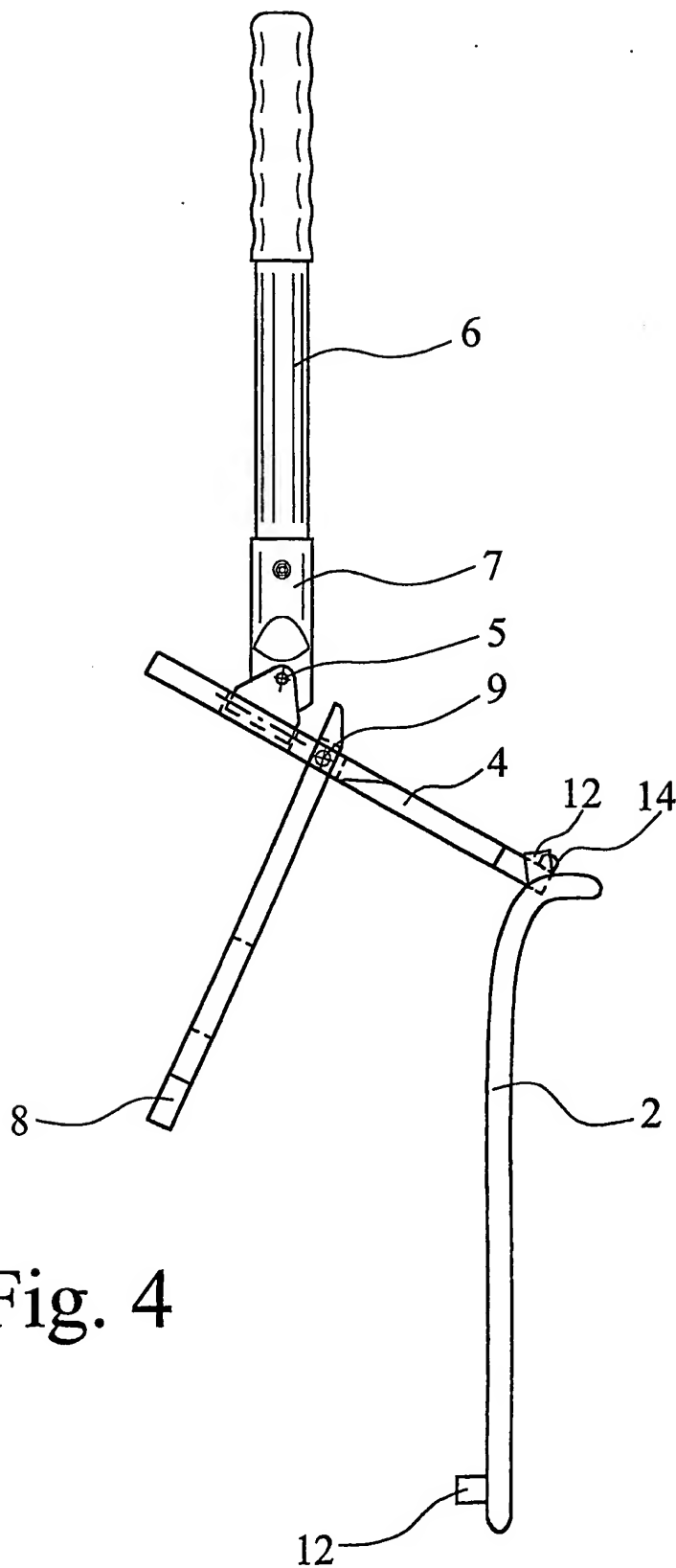


Fig. 4

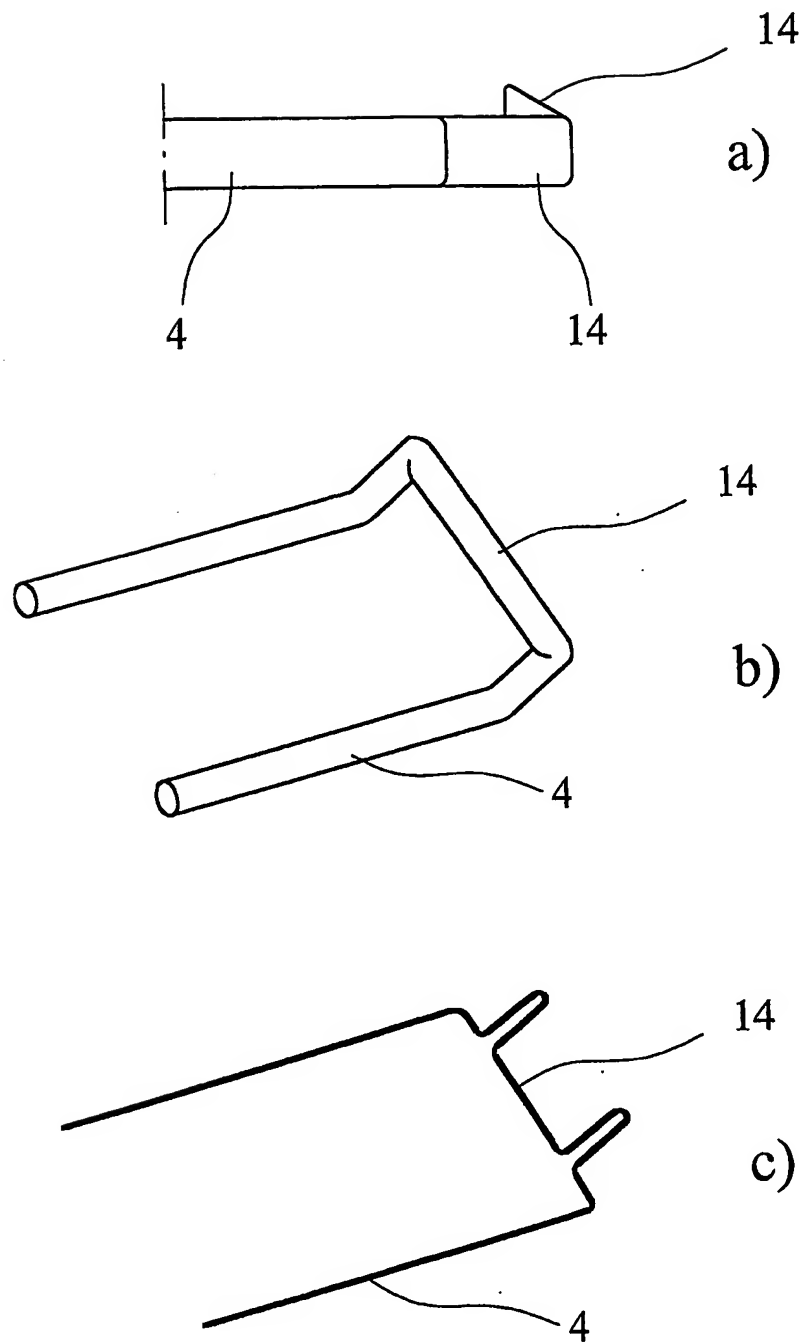


Fig. 5

# INTERNATIONAL SEARCH REPORT

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PCT/EP 03/11412

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7    A47L13/258    A47L13/253		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7    A47L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data bases consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 39 35 649 A (J. MÜLLER) 2 May 1991 (1991-05-02) column 1, line 3 - line 9 column 2, line 3 - line 16 column 3, line 29 - line 56 claims 1,6; figures 1-3	1
A	-----	2-7
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A	-----	2-7
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*G* document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search  <div style="text-align: center; font-weight: bold;">17 June 2004</div>		Date of mailing of the international search report  <div style="text-align: center; font-weight: bold;">24/06/2004</div>
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  <div style="text-align: center; font-weight: bold;">Bourseau, A-M</div>

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International Application No  
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

International Application No

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